Plane:	X-15-3	Date:	11-15-67
Flight:	3-65-97	T.O.:	0913
Pilot:	Maj. Mike Adams	Launch:	1030
B-52:	#008	Land:	
Pilots:	Cotton/Miller/Russel	Total:	
NASA 1:	Maj. Pete Knight	B-52 Land:	

Taxi to 15 minutes

NASA 1:	NASA-9, clear to go.
NASA 9:	NASA-9 all clear.
NASA 1:	Thank you.
Tower:	Tower to 008, it's taxiing time.
Adams:	And my precision heading and precision attitudes look good.
NASA 1:	NASA 1.
B-52:	222 heading now, Mike.
Adams:	Roger, good here.
Tower:	008, clear to runway 04, wind at 030 degrees at 2. Altimeter 3011.
B-52:	3011 and runway 4, thank you, sir.
Tower:	008, tower, to the center of the runway was wet down earlier this morning. It appears mostly just slightly wet.
NASA 1:	Thank you tower, no sweat.
Adams:	NASA 1, do you want another set of gages?
NASA 1:	Yeah, Mike, go ahead.
Adams:	I'm going to get my window shade up so I can see. OK, #1 and 2 source 3350. Controls still 570. Fox 3350. Cabin 34. #1 APU's 3850, #2's source 3900. Mixing chamber both about minus 43.
NASA 1:	NASA 1.
Adams:	Roger.
B-52:	008, ...
Tower:	008, I have a flight of two, a test mission to takeoff of 04, if you could hold momentarily your start of taxi.
B-52:	Slowing up and we'll hold for them. No sweat.
(?):	..... helicopter 029 to proceed to the west end of the runway.
Tower:	08 is clear to taxi to approach end of 04.

B-52:	08, Roger, what's the surface temperature?
Tower:	I'll get you the latest. 08, the surface temperature is 58.
B-52:	Surface temperature 58, roger. 08, ...
NASA 1:	Heading is 223 now, Mike.
Adams:	Rog, same here.
(?) :	..... is 3012.
B-52:	0812.
NASA 1:	Good morning, Mike.
Adams:	Morning. Got the nose BCS heat on.
NASA 1:	Rog, Mike.
Cuthill:	..... oil switch turned on. NASA 1, ...
NASA 1:	Rog, Fred, we got you.
Cuthill:	.....
B-52:	Bomber 08, humming.
Tower:	008 is cleared for takeoff on ready, 1 count.
B-52:	008. OK, chopper you ready?
Chopper:	029, affirmative.
B-52:	Roger, 30 seconds to brake release. Ready, Mike?
Adams:	Yes sir.
B-52:	5, 4, 3, 2, 1, brake release.
Cuthill:	Some panel just fell off the airplane. I can't tell which one it was. It's on the left hand side.
Tower:	Ready to turn, NASA-9?
NASA 9:	NASA 9, Tower. Is it all right we pull out here and pick up this panel?
Tower:	.....
NASA 1:	NASA-9, NASA 1, let us know what panel that was.
NASA 9:	Roger, says you can pick it up.
Adams:	I got windshield heat. Engine master reset. Precool.
NASA 1:	Rog, Mike.

Chopper: OK for 029 to cross the extension?

Tower: All right to cross.

NASA 1: Go ahead.

NASA 9: NASA 1, NASA 9.

Chopper: 029.

NASA 9: The panel is off the B-52. Horizontal stabilizer top side.

NASA 1: OK. Fred, will you go up and check the 52?

Cuthill: Rog.

B-52: Airplane feels OK, Pete.

NASA 1: OK. And Fred, the 52 is not trailing anything, is it?

Cuthill: Well, just the normal stuff after takeoff, fuel I guess it is.

NASA 1: Rog.

Russel: It's a drain in the water.

NASA 1: OK.

B-52: Residual is normal.

NASA 1: OK. 008, it will be 25,000 over north base. 37 minutes to launch on a heading of 057° and a time of 0935.

Tower: NASA 9, are you clear of the runway?

NASA 9: Yes, I am clear of the runway.

Tower: Thank you.

Cuthill: Somebody call the starboard side but I've never been in the Navy but I think it's on the port side, at least it's on the left hand side and it's right next to the fuselage, the best I can tell. Very small panel.

NASA 1: Rog, Fred, what do you think?

Cuthill: No sweat.

NASA 1: OK. And 08, did you get that North Base information?

B-52: Roger, we leave north base at 35 at 25,000, Pete.

NASA 1: Rog.

Tower: Where chopper 029, have a lot of aircraft, its alpha 23.

Chopper: 029.

Rapcon:	008, Approach Control, aircraft fly to (?) on antenna, with you. Squawk 2600, when you have time.
B-52:	2600 now.
Chopper:	029 here, ... runway.
NASA 1:	Rog, 029.
NASA 9:	Fred, how large is the panel?
Cuthill:	Looks to be about 6 or 8 inches square and it's just right next to the fuselage on the right upper horizontal stabilizer and it didn't hit a thing, as best as I can tell, when it came off.
NASA 1:	OK.
Cuthill:	You're not moving around very much, Mike.
Adams:	I am resting.
NASA 9:	08, pilot 15.
B-52:	Rog, 08.
NASA 1:	OK, Mike, if your tape "g" fails after launch, of course go to the standby "g" and it will not effect your boost guidance.
Adams:	Roger, Pete.
NASA 1:	Keep us advised of that tape "g". In any event, we'll go with the standby.
Adams:	Yeah, it's been looking good ever since that one glitch.
NASA 1:	OK.
B-52:	Pete, what was the heading to leave North Base on, again?
NASA 1:	057°.
B-52:	057, thank you. And in 15 l/2 minutes from now, right?
NASA 1:	That's affirmative.
Rover:	NASA 1, ... Chase 3 over North Base.
NASA 1:	Say again, calling NASA 1.
Rover:	This is roving 3, what time of day are they departing North Base?
NASA 1:	35.
Rover:	Thank you, sir.
B-52:	008, start at 20.
NASA 1:	Rog.

Chopper:	..... support helicopter, the X-15 runway is clear.
NASA 1:	Rog, thank you.
C-130:	NASA 1, 358.
NASA 1:	358, go ahead.
C-130:	Rog, we got a little problem in the boost to hydraulic system. We can't seem to get any pressure indication or indication of the pumps are putting out pressure. Might be a small delay here.
NASA 1:	OK, we can't stand much.
C-130:	Right, we'll do what we can.
NASA 1:	OK.
B-52:	008 holding at 250.
NASA 1:	Rog, 08. 08, you going to make a second 360?
B-52:	That's right.
NASA 1:	OK. Rog 08, and I got 9:25 right now and you're due to leave at 9:35.
B-52:	Affirm, thank you, Pete.
NASA 1:	OK. And Mike, go precool off.
Adams:	Precool off.
Cuthill:	Just had an F- 4 pass underneath us.
B-52:	In sight, Fred.
NASA 1:	As long as he's not shooting, Fred.
Cuthill:	Rog.
Adams:	I am just a tourist.
Chase 2:	NASA 1, Chase 2's airborne.
NASA 1:	Rog, Chase 2.
B-52:	Chase 2, mother ship 10 o'clock. You're coming 9 o'clock, so .....
Chase 2:	Chase 2 has mother ship.
Adams:	How come we don't call it the father ship?
NASA 1:	Keep it clean up there now.
Adams:	I'd rather have Col. Cotton as my father than my mother.
B-52:	Because of your umbilical source.

Chopper:	.....
NASA 1:	Rog, 029.
B-52:	Pete, you got 30 now?
NASA 1:	That's affirmative, right on.
B-52:	Thank you. What kind of wind we got at 25,000, Pete?
NASA 1:	Standby. Over Edwards the winds are 25 and 30,000 on 240 at 30 and 35.
B-52:	Roger.
NASA 1:	And the winds at 40, 000 over Edwards at 360 at 50 and the flaps at Las Vegas, 260 at 50.
B-52:	Understand.
C-130:	And NASA-l, 358.
NASA 1:	358.
C-130:	Rog, we can't get any hydraulic pressure at all on the right hand side and I don't know how long the delay will be. We have a hydraulic man coming out now.
NASA 1:	Rog.
B-52:	008, traffic at 12 o'clock, 5 miles, north bound.
Cuthill:	Understand. We don't have him yet.
B-52:	You have to turn. He'll be between l and 2 o'clock about 2 miles.
Cuthill:	Rog, we're in a left turn. We have a 104 beneath, looks like a NASA bird.
B-52:	Roger, Fred. You can clear that traffic, there's now traffic at 2 o'clock, 3 miles, east bound. Keep an eye out there, Fred.
Cuthill:	Roger, I don't see anything either.
Adams:	And Pete, my face plate heat is low. The aux cabin pressure switch is off. And the other source is looking real good.
NASA 1:	Rog, Mike.
Rapcon :	08, clear traffic.
B-52:	Thank you. 08, turning back at 6 o'clock, left.
C-130:	2 hours of .....
NASA 1:	Thank you. 08, NASA l.
B-52:	.....
NASA 1:	OK, let's make another 360 and we'll keep you advised.

B-52:	Roger. I'll start it right now, Pete.
NASA 1:	OK.
Rapcon :	08, traffic 11 o'clock, 2 miles, north west bound, fast.
B-52:	.....
Rapcon:	008, traffic 2 o'clock, 3 miles, east bound.
B-52:	Rog, 08, no contacts. Pete, will it be all right to let down about 1000 feet, we're a little close to the base of these clouds, I think.
NASA 1:	Rog.
B-52:	OK.
NASA 1:	What's your altitude now?
B-52:	25,200.
NASA 1:	OK.
Chase:	NASA 1, Rover .....
NASA 1:	Roger, Rover, you'll be Chase 3.
Chase:	Roger, going 291.6.
NASA 1:	Rog.
Chase 4:	NASA 1, Chase 4 airborne.
NASA 1:	Say again, Chase 4.
Chase 4:	Airborne.
NASA 1:	All chase aircraft, Cuddeback is hot to 80, Mojave B is hot. 2502 is hot up to 32.
B-52:	24,000 and we'll be over North Base in 30 seconds heading 057.
NASA 1:	Rog.
B-52:	And starting out and starting to climb. 057 is going to shave me pretty close to Three Sisters. A good clear sun Cuddeback, Pete.
NASA 1:	Rog.
B-52:	And we get a lot of cloud right here, we're going to go through. Keep a good eye on this, Don.
Chase:	08, do you plan on going through Cuddeback?
B-52:	Negative, I just said we had a little bit of cloud.
Chase:	Rog, understand.

NASA 1: 008, let's make another 360.

B-52: Rog, here we go. And Fred, I'm going to drop back down to 24.

NASA 1: OK.

Cuthill: Rog, I got a con just about 1,000 feet above us but I don't see any airplanes.

B-52: Me either. Going to drop back down.

NASA 1: The 130 got a problem and we're trying to scrounge another one here and we'll let you know as it goes on.

B-52: Rog, we understand.

Chase 3: NASA l, Chase 3 is back on freq.

NASA 1: Rog. 08, if you'll go back down and come up on North Base, like you did the first time, we'll keep you advised.

B-52: Wilco.

Cuthill: Pete, what did they say ..... are going to be?

NASA 1: We're going to watch those too, Fred.

Chase: Smith's Ranch is clear.

NASA 1: Very good. OK, precool on, Mike.

Adams: Roger, Pete. Precool on.

Rapcon: 008, traffic 2 o'clock, 2 .....

B-52: 08, no contacts. I'm going to drop down another 1,000 feet, Fred.

NASA 1: How's the weather look here, 08?

B-52: We're north and a little west of Mojave and at 24,000. Why, the forward visibility got down and got a bit hazy, just to stay in the clear of everything, it's about 23,000.

(?): 008, ...

B-52: 23,500, descending to 23,000.

Cuthill: Roger. NASA 1, Approach Control was calling you. Were you reading them?

B-52: ..... NASA 1, 008. We're apparently at 23,400, definitive part of 3,000. Pilot got a copy of ..... report.

NASA 1: 08, Rog.

B-52: 08, 23,000. And the forward visibility wasn't too good there, Pete. at 24,000 and just west of Mojave. Seems like instead of burning off it is getting to be more of it. Don't you think Chase l?

Cuthill:	Roger, I think what's causing it is any airplane that goes through the clouds makes more.
NASA 1:	OK, 08, let's head for North Base and out.
B-52:	Pete, rollout here, I guess we're about 2 minutes from North Base.
NASA 1:	OK.
B-52:	08, out of 230, for 250 from North Base.
NASA 1:	Rog, 08, come 5° right.
B-52:	5° right to 062. 24,500 and it looks like leaving North Base now.
NASA 1:	Rog, 08.
B-52:	Call North Base at 51 l/2, Pete, 25,000, we're not quite to it. I believe then.
NASA 1:	OK, 08. And Mike, we'll update your coordinates on the way out.
Adams:	OK, Pete.
Rapcon:	08, traffic, Mojave east bound out of 390, pilot 480 supersonic.
B-52:	Thank you, sir. Through 260 climbing.
Rapcon:	Understand you're proceeding on the mission.
B-52:	That's North Base at 51 l/2 and we're climbing out on the edge of .....
C-130:	3 and 4 apparently working normally now.
(?):	.....
B-52:	Read you sir, looks like we're going to be on the top of everything here at 27,500.
NASA 1:	358, one way or the other were going to need a 130 airborne by 20. 358, NASA 1.
C-130:	NASA 1, 358.
NASA 1:	What's your status now?
C-130:	OK, 3 and 4 appear to be working normally for some reason. Haven't figured that one out yet, but we'll get off the ground here shortly.
NASA 1:	OK, you got all the people and equipment there?
C-130:	Roger.
NASA 1:	OK, 526 is standing by and just so we get one off by 20.
C-130:	Roger.
NASA 1:	OK.
B-52:	008 out of 300.

NASA 1:	08, Rog.
Rapcon:	08, traffic 3 o'clock, 5 miles out bound.
NASA 1:	Precool off, Mike.
Adams:	Roger, Pete. And we got one coming up at 11.
NASA 1:	Say again.
B-52:	Looks like he is going underneath us. Can't tell which way he's going. Seems to be Chase 4.
NASA 1:	08, come left to 057.
Rapcon:	08, traffic seems to be Chase 4 at 11 o'clock, 5 miles.
B-52:	Understand no joy yet.
Cuthill:	I think they sent it down to .....
B-52:	Roger.
NASA 1:	OK, I'll give you the winds aloft again. About 40, 45,000, there anywhere 50 to 65 knots, and how's your IFDS altitude, Mike?
Adams:	Pretty good, says 33.5.
NASA 1:	OK. And we got no data on suit down here so, at your convenience, and 40,000 so you can call me for a suit check.
Adams:	Roger, Pete.
Chase 4:	NASA 1, Chase 4.
NASA 1:	Chase 4.
Chase 4:	Roger .....
NASA 1:	Say again, Ted.
Chase 4:	The radio .....
NASA 1:	For your tracking? Chase 4, NASA 1.
(?):	That's the start of recycling. Chase 4, do you read?
Chase:	Got a target there at 1 o'clock. Looks like he's going away, Fred.
Cuthill:	Well, I can't tell, he may be converging on his way out. I'll keep an eye on him.
Chase:	NASA 1, 817.
NASA 1:	817.
Chase:	Roger, just listening on your freq. If I can be of any assistance .....
NASA 1:	Rog, standby for Chase 4. 817, NASA 1.

Adams: And the ball nose is still on. Face plate heat is still low.

NASA 1: Rog, Mike.

Chase: Chase 4, 17.

(?): .....

Chase: Roger.

NASA 1: OK, Mike, we have a minute or so here. You ready to update your coordinates for tracking?

Adams: Roger.

NASA 1: OK, we want 3° nose down. So the setting will be 87° in pitch.

Adams: Roger, set at 87.

B-52: 008 is at 450 this time.

NASA 1: Rog, 08.

Adams: OK, 87.0 set in pitch.

NASA 1: OK, we want 2° right, that will be 92.0 in roll.

Adams: Roger, 92. OK, 92.0 in roll, set.

NASA 1: Rog. OK, Mike, you should have 87 in pitch, 92 in roll and heading will be more critical now since we're off 00.

Adams: Roger.

B-52: 08, coming 17 minutes. Launch pressure good.

NASA 1: Rog, 08.

Adams: I got trim, alternate trim and prime. Mini-honey circuit breaker up. Mini-honey systems off. Trim switch is in and stick ..... zero.

Russel: Lube oil temp 85°.

NASA 1: Rog, Jack.

B-52: 08, 15 minutes.

NASA 1: Rog, 08.

<u>10:15:01 - 15 minutes to Launch</u>

10:15:03	Adams:	Precool switch is on. Both BCS switches are on, and the BCS check.
	..... :	(Squelch break)
:08	NASA 1:	Rog.

:21	Cuthill:	OK, Mike. Flow, flow, flow, flow, flow, flow. Mark, right.
:31	Adams:	OK, #1 off.
:33	Cuthill:	Flow, flow, flow, flow, prime, prime.
:45		Flow, flow, flow, flow, flow, flow.
:55	Adams:	OK, both BCS switches on.
:59	NASA 1:	Rog, both BCS's on, Mike?
10:16:01	Adams:	Roger.
:02	NASA 1:	Thank you, Mike.
:25	B-52:	13 1/2 minutes, 008.
:28	NASA 1:	08.
:29	Adams:	Cooling switch is normal.
:32		Both blowers and LN2.
:36		Pressure cooling is on.
:39		The cabin source is 3550.
:43		Helium shutoff valve is open.
:46	NASA 1:	Rog, Mike.
10:17:22	Cuthill:	And Mike, you still have a little residual out of the left nose.
:26	Adams:	Rog.
:27	B-52:	08, 12 1/2 minutes.
:31	NASA 1:	Rog, 08.
:32	Adams:	APU's coming on.
:34	NASA 1:	Rog.
:39	Adams:	OK, clear for #1?
:41	Cuthill:	Rog, it's clear.
:42	NASA 1:	Rog. Go ahead, Mike.
:46	Cuthill:	It's OK.
:51	Adams:	Generators reset.
:54		Engine's reset.
:57		Hydraulics look good.
10:18:00		Electrics OK.
:03		Controls OK, flaps.
:08	Cuthill:	Coming down.
:10		Coming back up.

:13	Adams:	Trim is zero.
:16	Cuthill:	Rog.
:17	Adams:	Flap circuit breakers OK.
:22	AF 817:	Chase 1, 817.
:25	Chase 1:	5 square.
:28	Adams:	Platform is internal.
		Boost guidance β, or boost guidance reset.
:33		Computer light punched out.
:38	Russell:	MH-96 analyzer check started.
:41	Adams:	OK, inertials look good.
:45		Attitudes look good.
:48		Precool's off.
:50	NASA 1:	Rog, Mike.
:55	B-52:	9 minutes, or 11 minutes, 008. 11 minutes.
:59	Adams:	I'll start my check now, Pete.
10:19:01	NASA 1:	OK.
:14		Chase 4, your altitude?
:16	Chase 4:	Chase 4 is down at 17.
:19	NASA 1:	Rog.
:34	Helo 029:	Eddie 029 proceed to lakebed.
:44	NASA 1:	029, do your checks on channel 2 for tower.
:50	Tower:	Helicopter 029 is cleared for lift off. Wind calm.
10:20:01	Adams:	OK, the check's over, and it looks OK.
:06	.....	.....
:08	NASA 1:	OK, Mike.
:11		Chase 4, 2502 is hot up to 32.
:13	Adams:	BG enable.
:14	Chase 4:	Roger, understand it's hot.
:16	Adams:	High altitude's on.
:40	NASA 1:	Chase 4, NASA 1.
:43	Chase 4:	NASA 1, Chase 4, go ahead.

:45	NASA 1:	2502 is hot up to 32. Corridor is hot at 35.
:50	Chase:	Rog, Pete, we have two aircraft who are waiting down further who are trying to make the intercept from a lower altitude.
:56	NASA 1:	OK.
:57	B-52:	9 minute warning, 008.
10:21:00	NASA 1:	OK.
:01	Adams:	OK, α is about 1.75 nose up. β 2° left.
:10		Computed α 1.75 and β 1° right.
:13	NASA 1:	Rog, Mike, say again α.
:16	Adams:	About 2° up, Pete, and β's 2° left.
:19	NASA 1:	Rog, thank you.
:23	Adams:	I am back on ball nose.
:25	NASA 1:	OK.
:36		And NASA 1 will call 8 minutes.
:42		08, NASA 1 will call 8 minutes.
:45	B-52:	Roger, 008.
:47	Adams:	Roger, Pete.
10:22:02	Cuthill:	..... have a nice mission, Mike.
:04	Adams:	.....
:07	Russell:	MH-96 end of test on.
:10	NASA 1:	8 minutes now, 8 minutes now, 08. And, Mike, ...
:15	B-52:	08, roger.
:18	Adams:	Roger, Pete.
:35		That about zero now, Fred?
:39	Cuthill:	Standby just a second.
:40	Adams:	..... calls for turning relay to be in.
:45	Cuthill:	Rog.
:51		Leading edge down just a bit here, Mike. There, right there.
:58	Adams:	OK.

10:23:03	Cuthill:	Maybe a little more.
:13		Just a hair more.
:16		Right there.
:19	Adams:	..... (overkill)?
:23	NASA 1:	Chase 1, NASA 1, how do you read?
:39	Cuthill:	Loud and clear, go ahead, Pete.
:41	NASA 1:	OK, if we have any radio problems, you relay in. Keep the checklist going.
:46	Cuthill:	Rog.
:47	B-52:	Wilco. Where you at on the checklist, Mike?
:59	Adams:	I'm waiting for 6 minutes.
10:24:01	B-52:	OK, thank you.
:09	Russell:	NASA 1, lube oil temp 90.
:12	B-52:	6 minutes, 008.
:!4	NASA 1:	Rog, 08.
:15	Adams:	Aux cabin pressure switch is on.
:19		Fire extinguisher's auto.
:22		Side stick trim is zero.
:28		Minnie Honey 96 is still engaged.
:31		BCS is auto.
:35		Check the controls again.
:38	Cuthill:	OK.
:42	Adams:	Trim's still OK. (Squelch break)
:44		Roll BCS. (Squelch break)
:45	Cuthill:	OK. Flow, flow.
:51	Adams:	Stabilizer position.
:53	Cuthill:	Looks good, neutral.
:55	Adams:	OK, we got 2,200 on the oxygen.
10:25:02	B-52:	2,200 on the oxygen. Did you get it OK, Pete?
:04	NASA 1:	Rog, I am getting it.
:07	B-52:	Are you reading Mike, Pete?
:09	NASA 1:	Rog, reading him 5 square.

:12	B-52:	Rog, 5 minute warning, 008. Mike, that's Mach buffet. We've got you at .84 right now and we're pretty well on speed for launch.
:23	Adams:	I'm on X-15 oxygen and the cabin altitude is 36.
:28	NASA 1:	Rog, Mike.
:32	B-52:	5 minute warning, went through 20 seconds ago.
:36	Russell:	Lox topoff is complete.
:38	NASA 1:	Very good, Jack, and we're on time.
:42	Adams:	Say again, Pete.
:44	NASA 1:	We're on time, Mike. Everything's going OK.
:47	Adams:	OK. (Squelch break)
:52	NASA 1:	NASA 1 will call 4 minutes.
:55	B-52:	NASA 1, roger.
:57		Rolling out 216.
10:26:01	NASA 1:	4 minutes now, 4 minutes now, Mike.
:03	Adams:	Roger, Pete.
:06		OK, going pressurize and the pressure is coming up.
:09	NASA 1:	OK, roll out to 217, 08.
:12	B-52:	Right 217.
:17	Adams:	Do stabilized (?) jettison check, Fred.
:23	Cuthill:	Looks good.
:26	Adams:	Am back to pressurize and I got 4 switches in jettison. And, I'm on X-15 radio, Pete.
:33	NASA 1:	Rog, good, Mike.
:35	Adams:	OK.
10:27:01	B-52:	3 minute warning, 008.
:06	Adams:	Rog, surfaces zero?
:08	Cuthill:	Rog, Mike.
:10	Adams:	Inertials look good. Attitudes look good.
:16		#1 APU is 90 and #2 is 95.
:23		Data's on and calibrate.

:26		Precision heading is jittering a little bit, plus or minus a half of degree.
:29	NASA 1:	OK, Mike.
10:28:02	B-52:	2 minute warning, 008.
:09	Adams:	Altitude switch is on.
		I pressed to test ball nose.
		α is 1, β is 2.
:19		And, the sunshade is up.
		How do you read, Pete?
:20	NASA 1:	Rog, 5 square, Mike.
:22	Adams:	OK.
:30	NASA 1:	NASA 1 will call 1 minute, NASA 1 will call 1 minute.
:35	B-52:	008, understood.
:39	Adams:	Roger.
10:29:06	NASA 1:	1 minute now, Mike, 1 minute.
	Adams:	Rog.
:09		Experiment, camera.
:16		Give me a 45 second call.
:22	B-52:	45 seconds now, 08.
:26	Adams:	Rog.
:30		Prime, igniter ready.
:36		And, precool, igniter and tape.
		And, give me 15 seconds, Joe, will you? I missed that.
:51	B-52:	15 seconds, 08.
:54	Adams…	Pump good, igniter.
10:30:02	B-52:	5 seconds, 008.
:03	NASA 1:	Looks good here, Mike.
:07	Adams:	Rog. 2, 1, launch.
:11	NASA 1:	Rog, we got a good light her, Mike.
		Check your α and your heading.
:21		Right on the track, Mike. You're coming up on profile.
:29		Standby for theta.
:33		How do you read, Mike?
		(Squelch break)
:39		Check your boost guidance null, Mike.
		And, how do you read?
:44		OK, Mike, we have you right on the track, on the profile.
:45	B-52:	You're on track and profile, Mike.

:52	Adams:	Roger.
:54	B-52:	I'll relay, Pete.
	NASA 1:	OK.
10:31:01		Standby for 83,000, Mike.
:04	B-52:	Standby for 83,000.
:09	NASA 1:	Do you read us at all, Mike?
:12		OK, you're right on the track.
	B-52:	Right on the track, Mike.
:19	NASA 1:	Coming up on 110,000.
	B-52:	Coming up on 110,000.
:22	NASA 1:	On the profile, on the heading.
:24	B-52:	On profile, on heading.
:26	NASA 1:	Standby for shutdown.
:27	B-52:	Standby for shutdown.
:33	NASA 1:	Precision attitudes, Mike.
:35	B-52:	Precision attitudes, Mike.
:39	NASA 1:	α to zero.
:40	B-52:	α to zero.
:42	NASA 1:	And, rock your wings, and extend your experiment, Mike.
:45	B-52:	Extend your experiment, Mike.
:50	NASA 1:	On the heading, on the profile.
:52		Have you going a little bit high. That's all right.
:54	B-52:	On the heading, on the profile. Maybe a little bit high.
:58	Adams:	I am reading him now.
		I got a computer and instrument light now.
10:32:03	NASA 1:	OK, Mike.
:08		We'll go ahead and try computed α at 230, Mike.
:14		Check your computed α now.
:18		And, you're right on the track, Mike.
:27	Adams:	I lost my pitch and roll dampers.
:31	NASA 1:	OK, Mike. Let's try and get them on.
:32	Adams:	They reset.

:34	NASA 1:	Did they reset?
:35	Adams:	Yep.
:36	NASA 1:	OK.
:37		And, I'll give you a peak altitude, Mike.
:42		Have you coming over the top.
		You're looking real good.
		Right on the heading, Mike.
:51		Over the top at about 261, Mike.
:54		Check your attitudes.
10:33:02		You're a little bit hot, but your heading is going in the right direction, Mike.
:09		Real good.
:11		Check your attitudes.
		How do you read, Mike?
:14		OK, let's check your dampers, Mike.
:17	Adams:	They're still on.
:18	NASA 1:	OK.
:24		A little bit high, Mike, but real good shape.
:33		And, we got you coming down hill now.
		Are your dampers still on?
:37	Cuthill:	Dampers still on, Mike?
		(Squelch break)
:39	Adams:	Yeah, and it seems squirrely.
:44	NASA 1:	OK, have you coming back through 230.
		Ball nose, Mike.
:50		Let's watch your α, Mike.
:58		Let's not keep it as high as normal with this damper problem.
		Have you at 210. α, β and check your α, Mike.
10:34:02	Adams:	I'm in a spin, Pete.
:05	NASA 1:	Let's get your experiment in and the camera on.
:13		Let's watch your theta, Mike.
:16	Adams:	I'm in a spin.
:18	NASA 1:	Say again.
:19	Adams:	I'm in a spin.
:21	NASA 1:	Say again.
:27		OK, Mike, you're coming through about 135 now.
:34		Let's get it straightened out.
:37	.....	(2 squelch breaks)
:42	NASA 1:	OK, you got θ zero now.
:44		Get some angle of attack up.
:50		Coming up to 80,000, Mike.
:53		Let's get some α on it.

:57		Get some "g" on it, Mike.
:59		Let's get some "g" on it.
10:35:02		We got it now, let's keep it there.
		Coming around.
:09		OK, let's keep it up, Mike.
:14		Keep pulling it up.
		Do you read, Mike?
:20		Let's keep pulling it up, Mike.
:27		OK, 130 let's head down that way.
:37	Chase:	He was abeam Cuddeback, 130 - 358.
:42	NASA 1:	Chase 4, do you have anything on him?
:44	Chase 4:	Chase 4, negative.
:47	NASA 1:	OK, Mike, do you read?
:52	Chase:	Pete, I got dust on the lake down there.
:55	NASA 1:	What lake?